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DIVISIONAL
REISSUE PATENT APPLICATION TRANSMITTAL

Broadened Reissue
Address to:
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Box Patent Application
Washington, DC 20231

Attorney Docket No. MAT-3720US4
First Named Inventor Ryoichi Imanaka
Original Patent Number 5,790,172
Original Patent Issue Date (Month/Day/Year) August 4, 1998
Express Mail Label No. EL635061806US

APPLICATION FOR REISSUE OF:
(check applicable box)



Utility Patent



Design Patent



Plant Patent

APPLICATION ELEMENTS

1. ☒ * Fee Transmittal Form (PTO/SB/56)
(Submit an original, and a duplicate for fee processing)
2. ☒ Specification and Claims (amended, if appropriate)
3. ☒ Drawing(s) (proposed amendments, if appropriate)
4. ☒ Reissue Oath / Declaration (original or copy)
(37 C.F.R. § 1.175)(PTO/SB/51 or 52)
5. Original U.S. Patent
☒ Offer to Surrender Original Patent (37 C.F.R. § 1.178)
(PTO/SB/53 or PTO/SB/54)
or
☐ Ribboned Original Patent Grant
☐ Affidavit / Declaration of Loss (PTO/SB/55)
6. Original U.S. Patent currently assigned?
☒ Yes ☐ No
(If Yes, check applicable box(es))
☒ Written Consent of all Assignees (PTO/SB/53 or 54)
☒ 37 C.F.R. § 3.73(b) Statement ☐ Power of Attorney

ACCOMPANYING APPLICATION PARTS

7. ☒ Foreign Priority Claim (35 U.S.C. 119)
(if applicable)
8. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
9. ☐ English Translation of Reissue Oath/Declaration
(if applicable)
10. ☐ * Small Entity Statement(s) ☐ Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)
11. ☐ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
13. ☒ Other: Request for Transfer of Drawings;
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CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)

Applicant(s): Ryoichi Imanaka

Docket No.

MAT-3720US4

Serial No.
To Be AssignedFiling Date
Herewith

Examiner

Group Art Unit

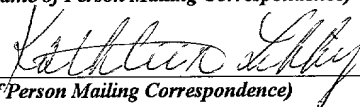
Invention: **SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM**

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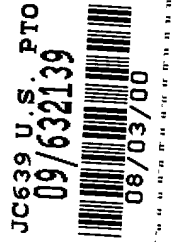
DIVISIONAL REISSUE APPLICATION BY THE INVENTOR, OFFER TO SURRENDER PATENT		Docket Number (Optional) MAT-3720US4
<p>This is part of the application for a reissue patent based on the original patent identified below.</p>		
Name of Patentee(s) Ryoichi Imanaka		
Patent Number 5,790,172	Date Patent Issued August 4, 1998	
Title of invention SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM		
<p>I am the inventor of the original patent.</p> <p>I offer to surrender the original patent.</p> <p>1. <input checked="" type="checkbox"/> Filed herein is a certificate under 37 CFR 3.73(b).</p> <p>2. <input type="checkbox"/> Ownership of the patent is in the inventor(s), and no assignment of the patent has been made.</p> <p>One of boxes 1 or 2 above must be checked.</p> <p>The written consent of all assignees owning an undivided interest in the original patent is included in this application for reissue.</p>		
Signature		Date
Typed or printed name Ryoichi Imanaka		
The assignee owning an undivided interest in said original patent is <u>Matsushita Electric Industrial Co., Ltd.</u> , and the assignee consents to the accompanying application for reissue.		
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.		
Name of assignee Matsushita Electric Industrial Co., Ltd.		
Signature of person signing for assignee		Date
Typed or printed name and title of person signing for assignee Dr. Osamu Yamazaki Director		

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: R. Imanaka
Serial No.: To Be Assigned
Filed: Herewith
FOR: SERVER APPARATUS,
SUBSCRIBER APPARATUS AND
INFORMATION ON DEMAND SYSTEM

: Art Unit:
: Examiner:

CERTIFICATE UNDER 37 CFR 3.73 (b)

Assistant Commissioner for Patents
Washington, D.C. 20231

S I R :

Matsushita Electric Industrial Co., Ltd., a Japanese Corporation certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of an assignment from the inventor of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel 7692, Frame 0439, for which a copy thereof is attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by

fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date : _____

Name : Dr. Osamu Yamazaki

Title : Director

Signature : _____

DIVISIONAL REISSUE APPLICATION BY THE ASSIGNEE, OFFER TO SURRENDER PATENT		Docket Number (Optional) MAT-3720US4				
<p>This is part of the application for a reissue patent based on the original patent identified below.</p> <p>Name of Patentee(s): Ryoichi Imanaka</p> <table border="1"><tr><td>Patent Number 5,790,172</td><td>Date Patent Issued August 4, 1998</td></tr></table> <p>Title of Invention SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM</p> <p><u>Matsushita Electric Industrial Co., Ltd.</u> is the assignee of the entire interest in the original patent.</p> <p>I offer to surrender the original patent.</p> <p><input checked="" type="checkbox"/> A certificate under 37 CFR 3.73(b) is attached.</p> <p>I am authorized to act on behalf of the assignee.</p> <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.</p> <p>Name of assignee Matsushita Electric Industrial Co., Ltd.</p> <table border="1"><tr><td>Signature of person signing for assignee</td><td>Date</td></tr></table> <p>Typed or printed name and title of person signing for assignee Dr. Osamu Yamazaki Director</p>			Patent Number 5,790,172	Date Patent Issued August 4, 1998	Signature of person signing for assignee	Date
Patent Number 5,790,172	Date Patent Issued August 4, 1998					
Signature of person signing for assignee	Date					

ASSENT BY ASSIGNEE FOR FILING OF REISSUE APPLICATION (DIVISIONAL)

This is part of the application for a reissue patent filed herewith based on the original patent identified as follows:

Name of Patentee: Matsushita Electric Industrial Co., Ltd.

Patent Number: 5,790,172

Date Patent Issued: 08/04/1998

Title of Invention: SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM

I am an assignee owning an undivided interest to the above original patent.

I assent to the accompanying application for reissue.

Attached is a "Certificate under 37 C.F.R. section 3.73(b)"

Matsushita Electric Industrial Co., Ltd.

Signature of person signing for assignee

Date: _____

Dr. Osamu Yamazaki
Director



US005790172A

United States Patent [19]

Imanaka

[11] Patent Number: 5,790,172

[45] Date of Patent: Aug. 4, 1998

[54] SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM

[75] Inventor: Ryoichi Imanaka, Hirakata, Japan

[73] Assignee: Matsushita Electric Industrial Co., Ltd., Osaka, Japan

[21] Appl. No.: 503,604

[22] Filed: Jul. 18, 1995

[30] Foreign Application Priority Data

Jul 19, 1994 [JP] Japan 6-166695

[51] Int. Cl.⁶ H04N 7/16

[52] U.S. Cl. 348/7; 348/3; 348/5; 348/10; 348/12; 455/2; 455/6.2

[58] Field of Search 348/7, 12, 13, 348/10, 11, 1, 2, 3, 5; 455/2, 4.2, 5.1, 6.1, 6.3; 386/83, 94; 380/3, 4, 5; 360/15; H04N 7/16, 6/173

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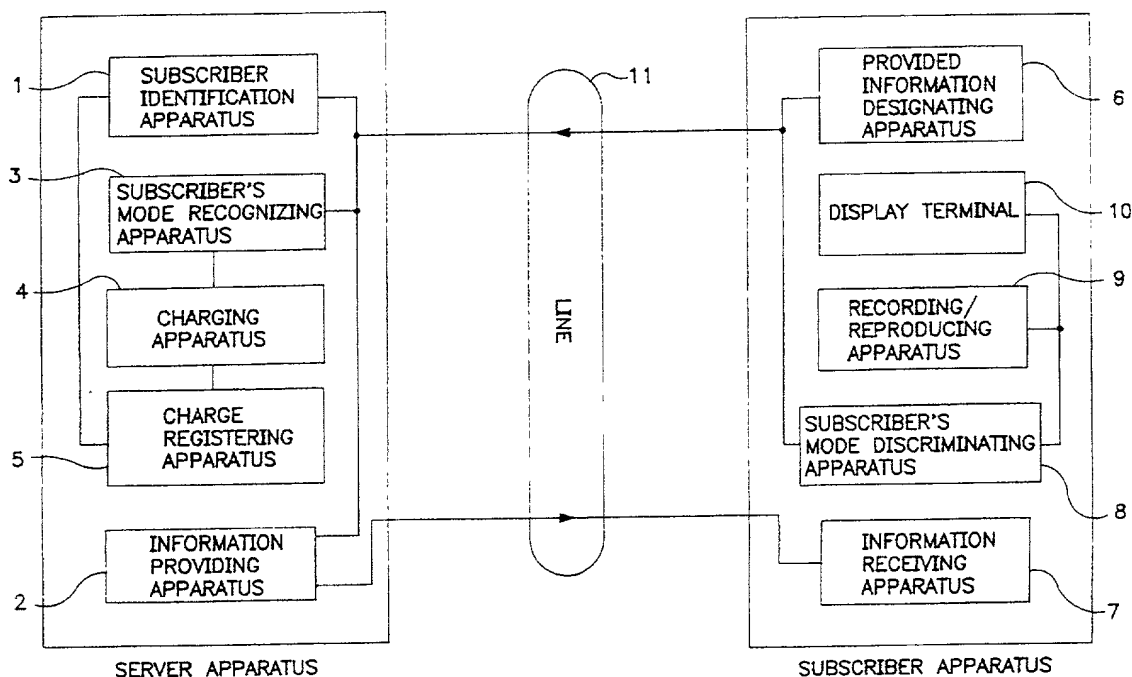
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Primary Examiner—Christopher C. Grant
Attorney, Agent, or Firm—Ratner & Prestia

[57] ABSTRACT

An information on demand system provides a user of a terminal (subscriber) information through a network such as CATV such that the user pays an adequate charge to a server (information provider). According to the information on demand system, the received information can be recorded in a recording medium under control of the terminal equipment. Cases in which 1) the subscriber merely watches a program on a television receiver and; 2) the subscriber records the program and watches it by reproducing the recorded information at another time are distinguished and the subscriber is charged a different amount by the server accordingly.

13 Claims, 5 Drawing Sheets



1
SERVER APPARATUS, SUBSCRIBER
APPARATUS AND INFORMATION ON
DEMAND SYSTEM

BACKGROUND OF THE INVENTION

(1) Field of the Invention

The present invention relates to an information on demand system which provides information to subscribers through a CATV network and process improvement of a system in which subscribers pay charge to a server according to provided amount of information. Accordingly, in an information on demand system in accordance with the present invention, a plurality of different charging system are provided for every form which a subscriber utilizes the information.

(2) Description of the Prior Art

In an information on demand system such as CATV, an information provider (server) and users (subscribers) make contract each other. CATV cables are provided between the server and the subscribers and an information such as an audio/video signal is provided from the server to the subscribers. In this case, there is basically only one charging system and the charging system is that the server periodically collects the same amount of charge even if the subscriber records an audio/video information provided by the server in a video tape recorder (VTR, hereafter) or the like that at the subscriber (receiver) side or the subscriber merely listens/watches the same information by a television receiver without recording it in a VTR.

In the above-mentioned charging system, however, different charging systems can be set for the same CATV line.

Especially, since audio/video information becomes to be transmitted by a digital signal, if the audio/video information which is composed of a digital signal is recorded in a recording medium such as a digital video tape recorder (VTR), a copy which has no deterioration in audio/video quality compared with an audio/video information provided by the server can be obtained at the subscriber side. This is a problem from a view point of copyright protection.

SUMMARY OF THE INVENTION

An information on demand system in accordance with the present invention aims at making subscribers of CATV terminals pay adequate charge to a CATV server. It makes possible to control a recording/reproducing apparatus (usually called merely a recorder) and to record a received information in a recording medium. Using an information on demand system in accordance with the present invention, the subscribers can pay adequate charge to the server according to the purpose for which the subscribers use the received information.

To solve the above-mentioned problem, an information on demand system in accordance with the present invention includes an information providing apparatus for providing an audio/video information according to a subscriber's request; a display terminal for displaying the audio/video information provided by the information providing apparatus; and a recording/reproducing apparatus for recording the audio/video information provided by the information providing apparatus; and is composed so that a different amount is charged to the subscriber among the case in which only the information is displayed on a display terminal, the case in which the information is recorded in a recording/reproducing apparatus and the case in which not only the information is displayed on a display terminal but also the information is recorded in a recording/reproducing apparatus.

Therefore, in a charging system of the information on demand system in accordance with the present invention, because the CATV server can check whenever the subscriber records a program provided to a recording medium through a CATV cable, the CATV server can charge at every subscriber's recording. In actual, a terminal controller writes at every time when recording is made and the server can check anytime if necessary.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of an information on demand system in accordance with a first exemplary embodiment of the present invention.

FIG. 2 is a block diagram of a display terminal used in an information on demand system in accordance with the first exemplary embodiment of the present invention.

FIG. 3 is a block diagram of an information on demand system in accordance with a third exemplary embodiment of the present invention.

FIG. 4 is a block diagram of a subscriber apparatus used in an information on demand system in accordance with a fourth exemplary embodiment of the present invention.

FIG. 5 is a flow chart of a writing/reading action of a subscriber apparatus used in an information on demand system in accordance with a fourth exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

An information on demand system in accordance with exemplary embodiments of the present invention is explained below referring to drawings.

(First Exemplary Embodiment)

A block diagram of an information on demand system in accordance with a first exemplary embodiment of the present invention is shown in FIG. 1. The left side shows a block diagram of a server apparatus at a server side of the system. The block 1 is a subscriber identification apparatus for reading an identification number (ID number, hereafter) for identifying every individual subscriber. Block 2 is an information providing apparatus for providing information through a line 11. The information includes every information such as audio/video information such as movies, audio information such as music, town information showing what to see and where good restaurants are at sight-seeing spots and computer programs for games, etc.. Block 3 is a subscriber's mode recognizing apparatus for recognizing which the information is given to a subscriber's display terminal or a subscriber's recording/reproducing apparatus. Block 4 is a charging apparatus for charging a different amount between the case in which the audio/video information is given to the subscriber's display terminal and the case in which the audio/video information is given to the subscriber's recording/reproducing apparatus. Block 5 is a charge registering apparatus provided for every subscriber and each charge registering apparatus 5 corresponding to a subscriber provided with an audio/video information accumulates the amount corresponding to the output of charging apparatus 4 based on a subscriber's identification information identified at subscriber identification apparatus 1.

The right side of FIG. 1 shows a block diagram of a subscriber apparatus at a receiver side of the system. Block 6 is a provided information designating apparatus for reporting the information which the subscriber requests to the

server. Block 7 is an information receiving apparatus for receiving the information which is provided from the server according to a subscriber's request. Block 8 is a subscriber's mode discriminating apparatus for discriminating which the output signal of information receiving apparatus 7 is provided to the subscriber's display terminal or to the subscriber's recording/reproducing apparatus and reports the subscriber's ID number to the server through line 11. Block 9 is a recording/reproducing apparatus for recording the provided audio/video information outputted from subscriber's mode discriminating apparatus 8. Although an optical disc is used as a recording/reproducing medium in the exemplary embodiment, any medium which can record and reproduce such as magnetic recording medium and semiconductor device may be used. Block 10 is a display terminal for outputting the audio/video information provided by subscriber's mode discriminating apparatus 8 as a sound and picture. Although a cathode ray tube (CRT, hereafter) is used as a picture display device in the exemplary embodiment, all devices which transmits information to a subscriber through subscriber's five senses, such as a liquid crystal display device, picture forming apparatus displaying information on a copyable medium like paper such as a printer can be used. The block 11 is a wired CATV line and anything which can transmit information such as wired lines like a telephone line and wireless means like satellite communication may be used.

The performance of an information on demand system composed as the above is explained below. In the exemplary embodiment, a CATV cable is used for line 11.

A subscriber designates an audio/video information which the subscriber wants to be provided through provided information designating apparatus 6. Provided information designating apparatus 6 transmits a subscriber's ID number and an ID number of a designated audio/video information to a server side through line 11. When the server apparatus receives the subscriber's ID number and the ID number of a requested audio/video information, subscriber identification apparatus 1 identifies the subscriber's ID number, judges whether the subscriber's ID number is registered. If the ID number is registered in the server side, the server outputs a signal to allow to provide the audio/video information to information providing apparatus 2 and if the ID number is not registered, the server outputs a signal to prohibit from providing the audio/video information to information providing apparatus 2.

Information providing apparatus 2 which was allowed to provide the audio/video information transmits the audio/video information which the subscriber had requested to information receiving apparatus 7 through line 11. Information receiving apparatus 7 demodulates (decodes) the received audio/video information. In the case in which the information signal is transmitted with a scrambled procedure, the signal is provided to subscriber's mode discriminating apparatus 8 after descrambling procedure. Subscriber's mode discriminating apparatus 8 outputs the audio/video information either to display terminal 10 such as a CRT or to recording/reproducing apparatus 9 according to the subscriber's request. At the same time, the subscriber's information is transmitted to subscriber's mode recognizing apparatus 3 at the server side through line 11.

Subscriber's mode recognizing apparatus 3 which received an information from the subscriber outputs the information to charging apparatus 4. Charging apparatus 4 is set so that the charging amount is larger when the audio/video information is provided to the subscriber's recording/reproducing apparatus 9 than when provided to the subscri-

er's display terminal 10 and outputs the charging amount to charge registering apparatus 5 according to the output of subscriber's mode recognizing apparatus 3. Charge registering apparatus 5 accumulates the charging amount provided from charging apparatus 4. The server can collect the charge from the subscriber every month according to the amount written in charge registering apparatus 5.

In the case of an audio/video information such as movies because it is necessary to record an audio/video information for several hours by a digital signal, an optical disk is used as recording/reproducing apparatus 9 in the exemplary embodiment.

(Second Exemplary Embodiment)

An information on demand system in accordance with a second exemplary embodiment of the present invention is explained below referring to FIGS. 1 and 2. The blocks having similar functions to those in the first exemplary embodiment are numbered with the same reference numbers.

In FIG. 1, recording/reproducing apparatus 9 is a magnetic disk drive. Display terminal 10 includes a CRT 21, a central processing unit (CPU, hereafter) 22, a semiconductor memory 23, a reset circuit 24 and a timer 25 as shown in FIG. 2. Semiconductor memory 23 receives and writes an information transmitted from information providing apparatus 2 through subscriber's mode discriminating apparatus 8. CPU 22 executes a game according to an information from semiconductor memory 23. CRT 21 displays a picture corresponding to the execution result. Timer 25 outputs a signal at a designated time after the information is written in semiconductor 23. Reset circuit 24 resets and erases the information in semiconductor memory 23 according to the output signal of timer 25. A telephone line is used as a line 11.

The performance of the information on demand system is similar to that of the first exemplary embodiment. Because the information in semiconductor memory 23 of display terminal 10 is erased after a designated time, when the information is provided to display terminal 10, the subscriber can enjoy a game for the designated time.

According to such a configuration of the system, it is possible to change a charging system between the case in which only one game is made and the case in which a game software is provided to the subscriber.

(Third Exemplary Embodiment)

An information on demand system in accordance with a third exemplary embodiment of the present invention is shown in FIG. 3. The blocks having similar functions to those in the first exemplary embodiment are numbered with the same reference numbers. The left side shows a block diagram of a server apparatus of the system and the right side shows a block diagram of a subscriber apparatus of the system.

Block 12 is a user's drive operating state logging apparatus for collecting information concerning to a user's drive operating state and has a configuration to collect each subscriber's charge and to write the charge information for every subscriber.

Charging apparatus 4 and charge registering apparatus 5 are included in the subscriber apparatus. Charging apparatus 4 charges a different amount between the case in which an audio/video information is provided to display terminal 10 and the case in which the audio/video information is pro-

vided to recording/reproducing apparatus 9 according to the output of subscriber's mode discriminating apparatus 8. Charge registering apparatus 5 accumulates the charging amount according to the output of charging apparatus 4.

The subscriber designates the title name of the program 5 which the subscriber requests through provided information designating apparatus 6. Provided information designating apparatus 6 transmits the requested title name and the ID number to the server side through line 11. When the server side receives the requested title name and the ID number, the server outputs a signal to allow to provide the audio/video 10 information to information providing apparatus 2.

Then, information providing apparatus 2 transmits the audio/video information which the subscriber requested to be provided to information receiving apparatus 7 through 15 line 11. Information receiving apparatus 7 outputs a signal to subscriber's mode discriminating apparatus 8 outputs the signal to either display terminal 10 or recording/reproducing apparatus 9 according to the subscriber's request. At the same time, subscriber's mode discriminating apparatus 8 20 outputs a signal specifying which the audio/video information is supplied to display terminal 10 or to recording/reproducing apparatus 9 to charging apparatus 4. Charging apparatus 4 outputs a charge information from subscriber's mode discriminating apparatus 8 to charge registering apparatus 5. Charge registering apparatus 5 accumulates the 25 subscriber's charge amount according to the output signal from charging apparatus 4.

User's drive operating state logging apparatus 12 collects the charge which is asn information concerning to the subscriber's ID number and the user's drive operating state 30 at every month and from every subscriber and writes the charge information for every subscriber. The server can collect the accumulated amount based on the written charge information at every month from every subscriber.

According to the above-mentioned system, a different 35 charging system from a usual charging system can be set when a copy is made without any deterioration in sound/picture quality. Especially, when an analog signal is provided to display terminal 10 and a demodulated and descrambled digital signal is provided in recording/ 40 reproducing apparatus 9 as they are, because an audio/video information having nearly same sound/picture quality as the server's software can be recorded in a recording medium provided in recording/reproducing apparatus 9 at the subscriber side, it is significant to provide multi charging 45 systems.

Because it is not necessary to identify a subscriber's ID number at every time when the audio/video information is provided to the subscriber, the construction at the server side is simple and the time taken for providing information can 50 be shortened.

A similar effect can be obtained by a construction that charge registering apparatus 6 periodically informs the subscriber's charge to the server by that the server periodically visits the subscriber and checks the charge displayed at the subscriber side, even if the system has no user's drive 55 operating state logging apparatus 12 at the server side.

A construction without provided information designating apparatus 6 at the subscriber side can also set a different charging system from usual charging system when a copy without any quality deterioration in sound and picture is 60 made.

(Fourth Exemplary Embodiment)

A block diagram of a subscriber apparatus of an information on demand system in accordance with a fourth 65 exemplary embodiment of the present invention is shown in FIG. 4.

Symbol 32 is a line for transmitting signals such as CATV audio/video information to subscribers. A server apparatus 31 transmits an audio/video information which is channel encoded (modulated) after being scrambled for secret to a subscriber side through line 32. The audio/video information supplied from server apparatus 31 is a bit-stream with a packeted digital form. A decoder/descrambler 33 has a decoding function for decoding an encoded signal provided from server apparatus 31 and a descrambling function for converting a scrambled signal to an original audio/video signal.

A demultiplexer 34 converts a packet signal outputted from decoder/descrambler 33 into a parallel signal. Terminals 34a, 34b and 34c are output terminals to output a control data, a compressed audio signal and a compressed video signal, respectively. A video decompressor 35 decompresses the compressed video signal outputted from compressed video signal output terminal 34c into an original video signal. An audio decompressor 36 decompresses the compressed audio signal outputted from compressed audio signal output terminal 34b into an original audio signal. Terminal 37 is a video output terminal for supplying a video signal to a video signal input terminal of a television receiver and a VTR. Terminal 38 is an audio output terminal for supplying an audio signal to an audio signal input terminal of the television receiver and the VTR.

A terminal controller 39 manages the performance of the terminals by an input key 40 and a control data from control data output terminal 34a. An output of a recording/reproducing apparatus 41 is supplied to terminal controller 39. That is, a receiver at the subscriber side includes a decoder/descrambler 33 which is a demodulator/descrambler to demodulate and descramble an scrambled information transmitted from the server side, a terminal controller 39 which is supplied with an output signal of decoder/descrambler 33, outputs a signal to a recording/reproducing apparatus 41 for recording an audio/video information in a recording medium in which a subscriber's ID number is written and controls supplying the output signal. Terminal controller 39 registers the subscriber's ID number which is written in a recording medium of recording/reproducing apparatus 41 and the information ID number which is provided by the server when the subscriber finishes recording the audio/video information provided from the server in the recording medium of recording/reproducing apparatus 41.

Server apparatus 31 scrambles an audio/video information to provide to the subscriber for keeping secret, modulates (encodes) it to a form fitting line 32 and transmits the scrambled and modulated signal to the subscriber side through line 32. Decoder/descrambler 33 which has received the modulated signal through line 32 demodulates and descrambles the received signal and the output signal is released from scramble.

The performance when a provided audio/video information signal is outputted to a display terminal such as a television receiver is explained below.

The output signal of decoder/descrambler 33 is separated into a control data signal at demultiplexer 34 and the separated signals are outputted. The compressed audio signal outputted from output terminal 34b is converted into an original audio signal at audio decompressor 36, the compressed video signal outputted from output terminal 34c is converted into an original video signal at video decompressor 35. As a compression method, for example, an MPEG method is used. The control data signal, the compressed

video signal, the compressed audio signal from demultiplexer 34 and the output signal of decoder/descrambler 33 are inputted to terminal controller 39. Both the audio signal at terminal 34b and the video signal at terminal 34c are compressed digital bit-stream signals and they are supplied to recording/reproducing apparatus 41 via terminal controller 39. The audio/video information is recorded in the recording medium by recording (writing) the compressed digital bit-stream at recording/reproducing apparatus 41.

The performance when a provided audio/video information signal is recorded and reproduced at recording/reproducing apparatus 41 is explained below, referring to a flow chart shown in FIG. 5.

Recording/reproducing apparatus 41 is controlled by terminal controller 39. As an interface between recording/reproducing apparatus 41 and terminal controller 39, for example, SCSI-2 (ANSI standard X3. 13-199X) is used.

A recording medium is loaded on recording/reproducing apparatus 41. (action 51 in FIG. 5)

A program which the subscriber wants to record is selected with input key 40 and a write command is given to terminal controller 39. A subscriber's ID number to identify the subscriber and a title name of the program which the subscriber wants to record are written in a recording medium of recording/reproducing apparatus 41. (action 52)

A recording/reproducing apparatus ID number to identify the recording/reproducing apparatus 41, the subscriber's ID number and the title name of the program are checked. (action 53)

When all the recording/reproducing apparatus ID number, the subscriber's ID number and the title name of the program are confirmed to be those already registered, recording in the recording medium starts with a following procedure.

When one or more than one of the recording/reproducing apparatus ID number, the subscriber's ID number and the title name of the program are confirmed not to be those already registered, terminal controller 39 informs to the subscriber that the recording/reproducing apparatus ID number, the subscriber's ID number or the title name of the program is wrong. (action 54)

Then, terminal controller 39 gives a command to start recording to recording/reproducing apparatus 41. When the program which the subscriber requests is inputted through line 32, recording/reproducing apparatus 41 starts recording. (action 55)

When recording/reproducing apparatus 41 finishes recording, the fact that the recording finished is registered in terminal controller 39. (action 56)

Thus, the CATV server can manage the subscriber's charge, if necessary.

The subscriber apparatus is composed so that both the video signal and the audio signal outputted from video output terminal 37 and audio output terminal 38, respectively, are outputted via terminal controller 39 as a compressed digital bit-stream and whether the ID number is written in the writing medium is checked at starting of recording and when the subscriber's ID number is not written, the audio/video information is not supplied to recording/reproducing apparatus 41. Therefore, unless all the recording/reproducing apparatus ID number, the subscriber's ID number and the title name of the recorded program are registered, the subscriber can neither record the audio/video information in recording/reproducing apparatus 41 nor watch the program on the television receiver (display terminal).

Although a subscriber is identified by using a subscriber's ID number in the fourth exemplary embodiment of the present invention, a unique ID number of the recording/reproducing apparatus itself may be used instead of the subscriber's ID number. Similar effect is obtained in an information on demand system that an owner of the write/read device is discriminated from the unique ID number of the recording/reproducing apparatus itself and the charge is collected from the owner of the recording/reproducing apparatus.

The system can be also composed so that the server registers the title name of the program for a particular program and when the subscriber wants to write the title name, the terminal controller can check at the terminal controller if the subscriber is requesting a server's approval.

The charging system can be made so that the information can be reproduced by only a recording/reproducing apparatus which was used to record the audio/video information and by any other reproducing apparatus. In this case, the system is composed so that the descramble apparatus is connected to an arbitrary reproducing apparatus, the descramble apparatus certifies whether the medium in which the information was written has an approved ID number and only when reading from the medium certified by the descramble apparatus, the descramble apparatus performs normally.

According to an information on demand system in accordance with exemplary embodiments of the present invention, when a copy without any deterioration of sound/picture quality is made, a different charging system from usual charge can be set. Especially, when an analog signal is outputted to a recording/reproducing apparatus as they are, an audio/video information having almost same quality as the server's information is recorded in a recording medium of the recording/reproducing apparatus and it is significant to provide with three charging systems.

Because programs and informations are always recorded/written in recording medium based on a subscriber's ID number and a recording/reproducing apparatus ID number, it is possible to restrict a recording/reproducing apparatus used at reproducing.

The invention may be embodied in other specific form without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed:

1. An information on demand system comprising:
 - a server apparatus for providing information according to a request from a subscriber;
 - display means for displaying said information provided by said server apparatus; and
 - recording means for recording said information provided by said server apparatus;
 wherein a different amount is charged to said subscriber among a) in the case in which said information is provided to said display means, b) in the case in which said information is provided to said recording means and c) in the case in which said information is provided to said display means and to said recording means.
2. An information on demand system comprising:
 - information providing means for providing information according to a request from a subscriber;

information receiving means for receiving said information provided by said information providing means:

display means for displaying a further information signal output from said information receiving means:

recording means for recording said further information signal of said information receiving means:

subscriber mode discriminating means for discriminating whether said further information signal of said information receiving means is provided to one of said display means and said recording means:

charging means for charging a different amount among a) in the case in which said further information is provided to said display means, b) in the case in which said further information is provided to said recording means and c) in the case in which said further information is provided to said display means and to said recording means according to an output of said subscriber mode discriminating means: and.

charge registering means for registering charge data output from said charging means.

3. A server apparatus comprising:

subscriber identification means for reading an identifying information to identify a subscriber:

information providing means for providing information according to a request from said subscriber:

subscriber mode recognizing means for discriminating whether said information providing means provides said information a) to a subscriber display means, b) to a subscriber recording means or c) to said subscriber display means and said subscriber recording means:

charging means for charging a different amount among a) in the case in which said information is provided to said subscriber display means, b) in the case in which said information is provided to said subscriber recording means and c) in the case in which said information is provided to said subscriber display means and to said subscriber recording means according to an output of said subscriber mode recognizing means: and

charge registering means provided for every subscriber for registering a charge data output from said charging means: and wherein said charge registering means accumulates the charge data output from said charging means at said charge registering means corresponding to said identifying information according to a discriminating information discriminated at said subscriber identification means.

4. A server apparatus comprising:

provided information designating means for providing information requested by a subscriber to a server:

information receiving means for receiving said information provided by said server according to said subscriber request:

subscriber mode discriminating means for discriminating whether an information signal output from said information receiving means is provided a) to a display means, b) to a recording means or c) to both the display means and the recording means and informing said subscriber through said information receiving means.

5. A subscriber apparatus comprising:

information receiving means for receiving a provided information according to a request from a subscriber:

subscriber mode discriminating means for discriminating whether a further information signal output from said information receiving means is provided a) to a display

means. b) to a recording means or c) to both said display means and said recording means:

charging means for charging a different amount among a)
 5 in the case in which said further information is provided to said display means, b) in the case in which said further information is provided to said recording means and c) in the case in which said further information is provided to said display means and to said recording means according to an output of said subscriber mode
 10 discriminating means; and

charge registering means for accumulating an amount output from said charging means.

6. A subscriber apparatus as recited in claim 5; wherein
 15 the charge registering means periodically informs the subscriber's charge to a server.

7. A subscriber apparatus comprising:

demodulating means for demodulating an information signal provided by a server; and

20 terminal control means for inputting a demodulated information signal of said demodulating means, outputting a signal to recording means which records said demodulated information signal in a recording medium in which a subscriber identification number is recorded
 25 and controlling supply of the output signal; and wherein

said terminal control means registers said subscriber identification number recorded in said recording medium of said recording means and an information
 30 identification number provided from said server in said terminal control means, when a subscriber finishes the recording of the information signal provided from said server in said recording medium of said recording means.

35 8. A subscriber apparatus as recited in claim 7; wherein said demodulated information signal is not output to said recording means, when the subscriber identification number is not recorded in the recording medium of said recording means.

40 9. A subscriber apparatus as recited in claim 7 or 8; wherein

an identification number of said recording means is used instead of the subscriber identification number.

45 10. A subscriber apparatus as recited in claim 9 wherein: said subscriber is determined from the identification number of said recording means; and

a charge is collected from said subscriber.

11. A subscriber apparatus as recited in claim 10 wherein
 50 when the subscriber records information provided from an information providing apparatus, said information can not be recorded unless the subscriber is approved by the server.

12. A method for providing information on demand comprising the steps of:

55 receiving a request from a subscriber requesting information;

transmitting the information to at least one of a subscriber display means and a subscriber recording means for
 60 displaying and recording the information respectively. and

charging the subscriber one of a plurality of amounts depending upon whether the transmitted information is intended for recording on said recording means.

65 wherein said request for information indicates whether the subscriber is recording said information on said recording means.

receiving means for receiving a request from a subscriber for information.

5
sending means for sending the information to at least one
of a subscriber display means and a subscriber record-
ing means for displaying and recording the information
respectively, and

* * * * *

An information on demand system provides a user of a terminal (subscriber) information through a network such as CATV such that the user pays an adequate charge to a server (information provider). According to the information on demand system, the received information can be recorded in a recording medium under control of the terminal equipment. Cases in which 1) the subscriber merely watches a program on a television receiver and: 2) the subscriber records the program and watches it by reproducing the recorded information at another time are distinguished and the subscriber is charged a different amount by the server accordingly.

1 14.A computer information
2 system, comprising:

3 a provider for providing
4 information to a recipient;

said provider charging a
different amount to said recipient
depending upon whether recording of said
information in a medium is effected; and
recording of said information
in said medium is effected responsive to
detection of an identifier.

15.A computer information
system according to claim 14, further
comprising transmission means for
transmitting said information to the
recipient.

1 16.A computer information
2 system, comprising:

9 effecting recording of said
10 information in said medium responsive to
11 detection of an identifier.

1 ✓ 18.A method of processing
2 information, said method comprising the
3 steps of:

4 receiving information from a
5 provider;

6 charging a different amount
7 depending upon whether recording of said
8 information in a medium is effected; and

9 effecting recording of said
10 information in said medium responsive to
11 detection of an identifier.

1 ✓ 19.A computer information
2 system, comprising:

3 a recipient for receiving
4 information from a provider;

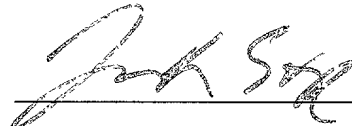
5 said recipient being charged a
6 different amount depending upon whether

**REQUEST FOR TRANSFER OF DRAWINGS FROM ORIGINAL PATENT
TO REISSUE APPLICATION**

Please transfer the drawings from original patent, 5,790,172, filed on July 18, 1995, for the invention entitled SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM to the reissue application, the specification of which is attached hereto.

Date:

8/3/00



Lawrence E. Ashery, Reg. No. 34,515
Jacques L. Etkowicz, Reg. No. 41,738
Ratner & Prestia
P.O. Box 980
Valley Forge, PA 19482

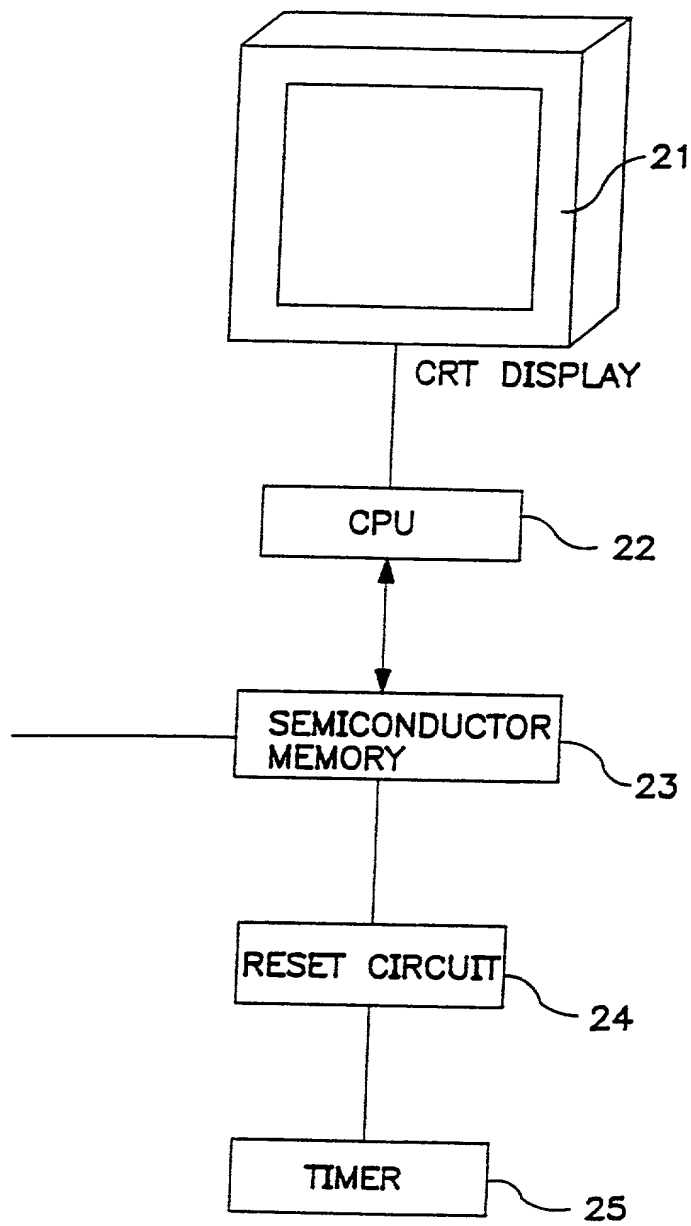


FIG. 2

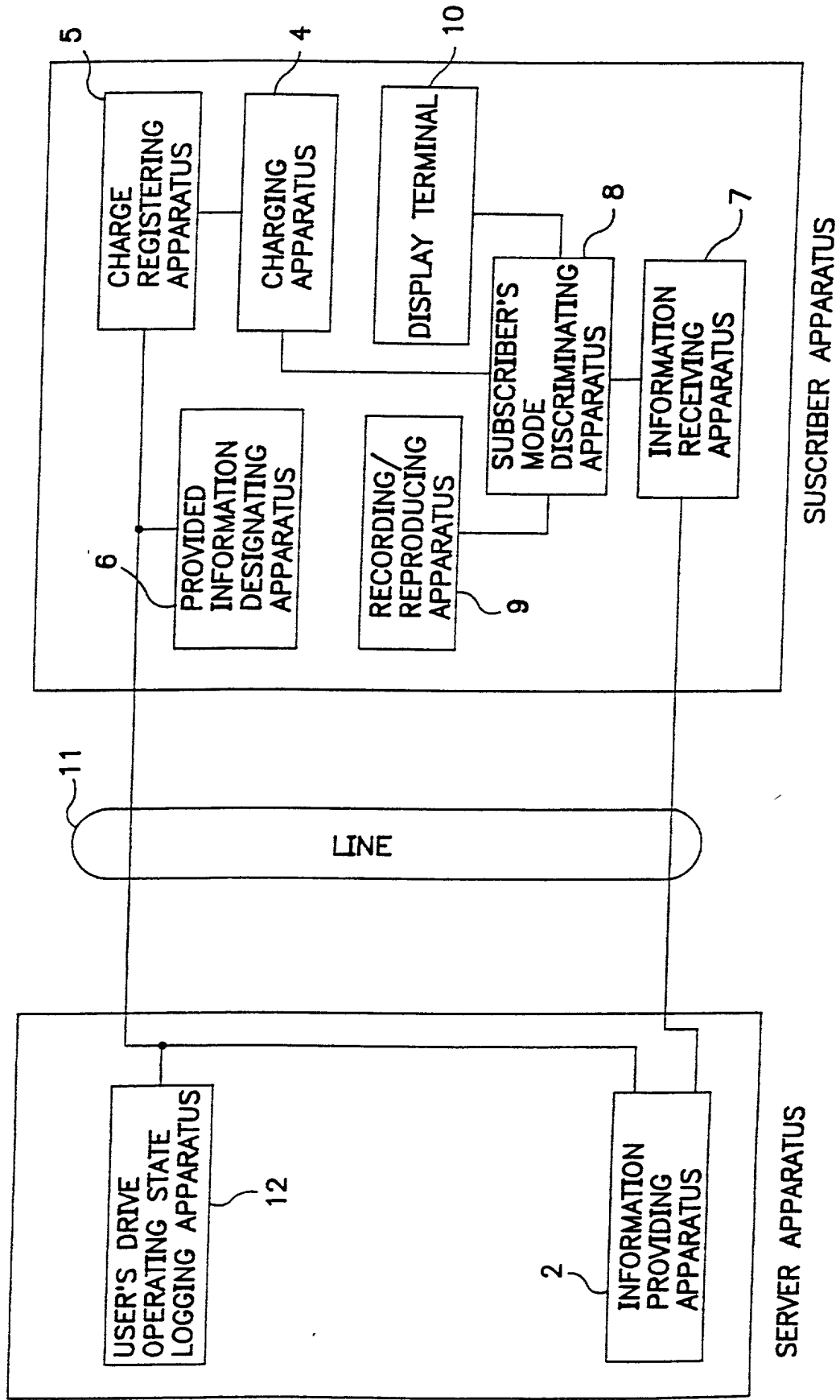


FIG. 3

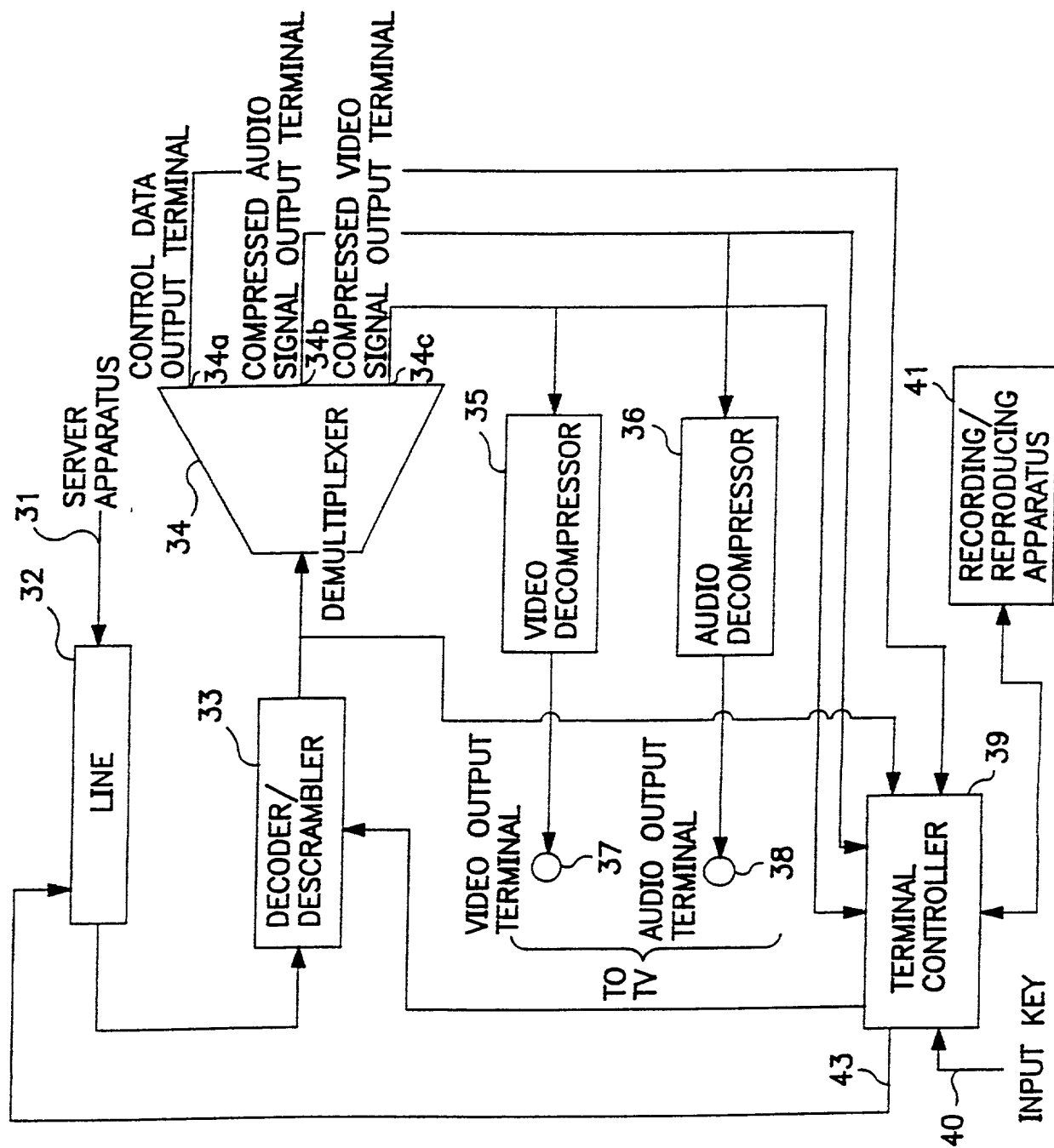
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FIG. 4

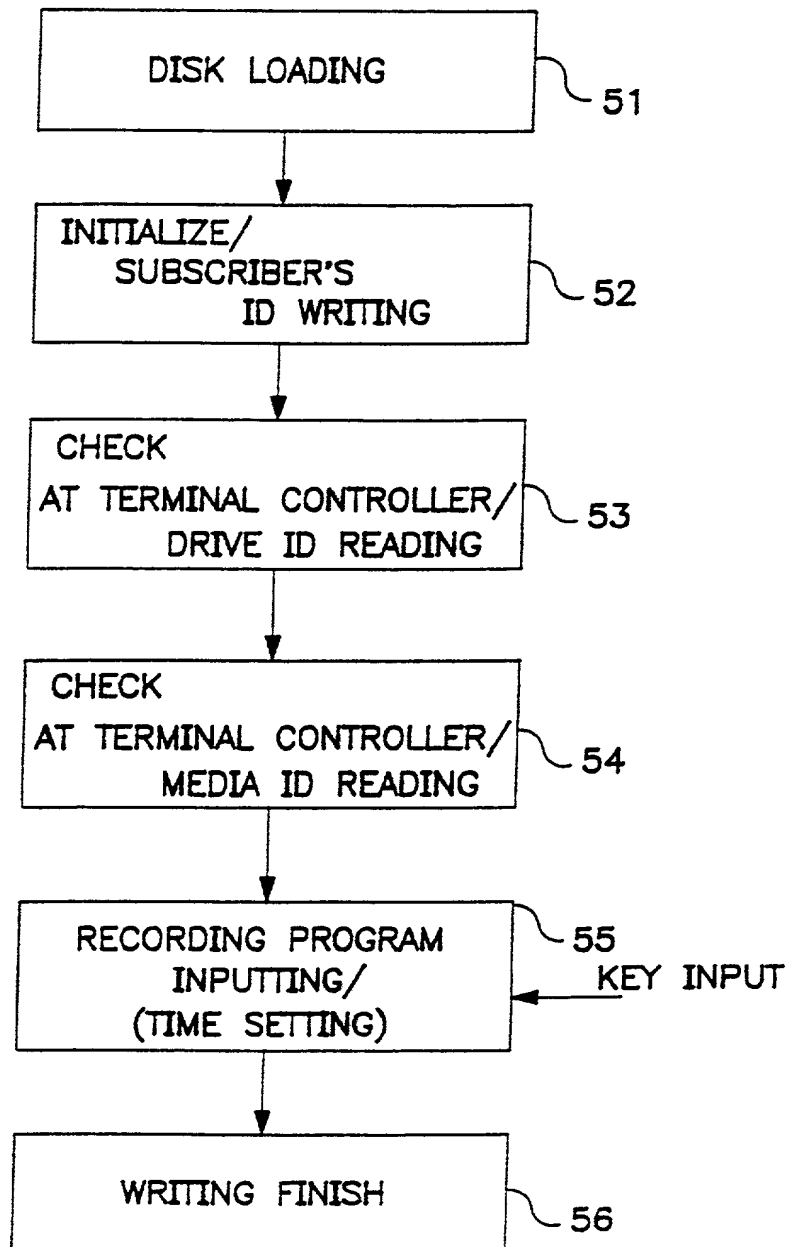


FIG. 5

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DIVISIONAL REISSUE APPLICATION DECLARATION BY THE ASSIGNEE		Docket Number (optional) MAT-3720US4
<p>I hereby declare that:</p> <p>My residence and post office address and citizenship are stated below next to my name.</p> <p>I am authorized to act on behalf of the following assignee: <u>Matsushita Electric Industrial Co., Ltd.</u></p> <p>and the title of my position with said assignee is: _____</p> <p>The entire title to the patent identified below is vested in said assignee.</p>		
Name of Patentee(s): <p style="text-align: center;">Ryoichi Imanaka</p>		
Patent Number <p style="text-align: center;">5,790,172</p>	Date of Patent Issued <p style="text-align: center;">August 4, 1998</p>	
Title of Invention <p style="text-align: center;">SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM</p>		
<p>I believe said patentee(s) to be the original, first and sole/joint inventor(s) of the subject matter which is described and claimed in said patent, for which a reissue patent is sought on the invention entitled _____</p> <p><u>SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM</u></p> <p>the specification of which</p> <p><input checked="checked" type="checkbox"/> is attached hereto.</p> <p><input type="checkbox"/> was filed on _____ as reissue application number _____</p> <p style="text-align: center;">and was amended on _____</p> <p style="text-align: center;">(If applicable)</p> <p>I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.</p> <p>I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.</p> <p>I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)</p> <p><input type="checkbox"/> by reason of a defective specification or drawing.</p> <p><input checked="checked" type="checkbox"/> by reason of the patentee claiming more or less than he had the right to claim in the patent.</p> <p><input type="checkbox"/> by reason of other errors.</p> <p>At least one error upon which reissue is based is described as follows:</p> <p style="padding-left: 40px;">During the prosecution of the application that issued as the above patent, the inventor, Ryoichi Imanaka, did not recognize that the features disclosed at column 2, line 37 through column 3, line 10 and column 7, lines 20-35 were appropriate to claim. As such, Mr. Imanaka did not claim all that he had a right to claim. This error was made without deceptive intent.</p> <p style="text-align: center;">[Attach additional sheets, if needed.]</p> <p>All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.</p>		

[Page 1 of 2]

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(REISSUE APPLICATION DECLARATION BY THE ASSIGNEE, page 2)

Docket Number (Optional)

MAT-3720US4

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Name(s)

Registration Number

Lawrence E. Ashery

34,515

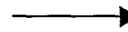
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1 001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of person signing (given name, family name)

Dr. Osamu Yamazaki, Director

Signature

Date

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Osaka 571 Japan

Patentee

Ryoichi Imanaka

Citizenship

Japanese

Residence/Post Office Address Residence: Hirakata Japan

Post Office Address: 3-2-6, Kuzuha Misaki, Hirakata-shi, Osaka 573 Japan

Patentee

Citizenship

Residence/Post Office Address

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DECLARATION

REGISTERED PRACTITIONER INFORMATION (Supplemental Sheet)

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Kevin R. Casey	32,117		
Benjamin E. Leace	33,412		
James C. Simmons	24,842		
Lawrence E. Ashery	34,515		
Christopher R. Lewis	36,201		
Robert L. Andersen	25,771		
Daniel N. Calder	27,424		
Louis W. Beardell, Jr.	40,506		
Jacques L. Etkowicz	41,738		
Jonathan H. Spadt	45,122		
Joshua L. Cohen	38,040		
Jack J. Jankovitz	42,690		
Christopher I. Halliday	42,621		
Allan Ratner	19,717		
Paul F. Prestia	23,031		
Andrew L. Ney	20,300		
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DIVISIONAL REISSUE APPLICATION DECLARATION BY THE INVENTOR	Docket Number (Optional) MAT-3720US4
<p>As a below named inventor, I hereby declare that:</p> <p>My residence, post office address and citizenship are stated below next to my name.</p> <p>I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is described and claimed in patent number <u>5,790,172</u>, granted <u>August 4, 1998</u>, and for which a reissue patent is sought on the invention entitled <u>SERVER APPARATUS, SUBSCRIBER APPARATUS AND</u></p> <p><u>INFORMATION ON DEMAND SYSTEM</u></p> <p>the specification of which</p> <p><input checked="" type="checkbox"/> is attached hereto.</p> <p><input type="checkbox"/> was filed on _____ as reissue application number ____ / _____ and was amended on _____ (if applicable)</p> <p>I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.</p> <p>I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.</p> <p>I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)</p> <p><input type="checkbox"/> by reason of a defective specification or drawing.</p> <p><input checked="" type="checkbox"/> by reason of the patentee claiming more or less than he had the right to claim in the patent.</p> <p><input type="checkbox"/> by reason of other errors.</p> <p>At least one error upon which reissue is based is described as follows:</p> <p>During the prosecution of the application that issued as the above patent, I did not recognize that the features disclosed at column 2, line 37 through column 3, line 10 and column 7, lines 20-35 were appropriate to claim. As such, I did not claim all that I had a right to claim. This error was made without deceptive intent.</p>	

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(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional)

MAT-3720US4

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant. As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Name(s)	Registration Number
Lawrence E. Ashery	34,515
Jacques L. Etkowicz	41,738

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<input checked="" type="checkbox"/> Firm or Individual Name	Ratner & Prestia				
Address	P.O. Box 980				
Address					
City	Valley Forge	State	PA	ZIP	19482
Country	United States				
Telephone	610-407-0700	Fax	610-407-0701		

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of sole or first inventor (given name, family name)

Ryoichi Imanaka

Inventor's signature

Residence Hirakata, Japan

Date

Post Office Address 3-2-6, Kuzuha Misaki, Hirakata-shi, Osaka 573,
Japan

Citizenship

Japanese

Full name of second joint inventor (given name, family name)

Inventor's signature

Date

Residence

Citizenship

Post Office Address

Full name of third joint inventor (given name, family name)

Inventor's signature

Date

Residence

Citizenship

Post Office Address

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Additional joint inventors are named on separately numbered sheets attached hereto.

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